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APPLICANT : NIPPON STEEL CORP;

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TITLE : MANUFACTURE OF HIGH-STRENGTH STEEL FOR ELECTRIC RESISTANCE
WELDED TUBE EXCELLENT IN TOUGHNESS AT LOW TEMPERATURE

ABSTRACT : PURPOSE: To manufacture a steel for electric resistance welded tube combining toughness at low temp. with high strength without adding alloying elements, by subjecting a steel in which respective contents of C, Si, Mn, etc., are specified to hot rolling at a specific temp. and also controlling cooling velocity and winding temp.

CONSTITUTION: The hot rolling of a steel which has a composition containing, as principal components, 0.01~0.07%, by weight, C, $\leq 0.5\%$ Si, and 0.5~2.0% Mn, further containing one or more kinds among $\leq 0.060\%$ Nb, $\leq 0.10\%$ V, and $\leq 0.050\%$ Ti, and having the balance Fe with inevitable impurities is completed at A_{r3} or above point. Subsequently, cooling is applied to the hot-rolled plate from a temp. of the A_{r3} point or above at $\leq 20^\circ\text{C}/\text{sec}$ cooling rate to form fine bainite and island martensite, followed by winding at $\leq 250^\circ\text{C}$. By using this steel, the high-strength seam welded tube excellent in toughness at low temp. can be manufactured while obviating the necessity of heat treatment over the whole tube.

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